Patent claims

1. A method for operating a mobile device for projecting image data using a first light source, characterized in that
a) at least one variable representing the characteristic of the current projection surroundings is ascertained at least once during a current projection phase (S1),
b) at least one parameter of the current projection phase is matched on the basis of the ascertained variable (S8..S11).

2. The method as claimed in claim 1, characterized in that the distance is measured on the basis of light emission.

3. The method as claimed in claim 1, characterized in that at least three distance measurements are carried out (S2..S4, S6), in which the measurement is in each case based on an emitted first signal (S3) and the first signals are emitted at different emission angles (S2).

4. The method as claimed in one of the preceding claims, characterized in that
a) at least one second signal (S2, S3) is emitted,
b) the intensity of reflected components of the second signal (S5) is measured.

5. The method as claimed in any of the preceding claims, characterized in that the brightness (S7) of the surroundings is measured.

6. The method as claimed in any of claims 1 to 5, characterized in that the first signal and/or the second signal is/are generated by emission of light (S3).

7. The method as claimed in claim 6, characterized in that the light is emitted by a device for generating laser light.

8. The method as claimed in claim 6, characterized in that the light is emitted by at least one light-emitting diode.

9. The method as claimed in one of the preceding claims, characterized in that reflected signal components of the first signal and/or of the second signal are detected by a photodiode.

10. The method as claimed in one of the preceding claims, characterized in that reflected signal components of the first signal and/or of the second signal are detected by a charge coupled device (CCD device).

11. The method as claimed in claim 3 or 4, characterized in that the first signal and/or the second signal are/is generated by emission of sound, in particular at frequencies in the ultrasound range.

12. The method as claimed in one of the preceding claims, characterized in that the distance is measured by ascertaining the time from the emission to the arrival of reflected signal components (S4).

13. The method as claimed in one of claims 1 to 11, characterized in that the distance is measured by evaluating interference resulting from reflected signal components.

14. The method as claimed in one of the preceding claims, characterized in that the brightness of the surroundings is measured by using devices intended for detecting reflected signal components without any signals previously having been emitted (S7).

15. The method as claimed in one of the preceding claims, characterized in that, if curvature of the projection surface is indicated by an evaluation obtained based on the result ascertained in step a) or by user input, at least one further distance measurement is carried out.

16. The method as claimed in one of the preceding claims, characterized in that steps a) to e) are repeated at discrete time intervals during a current projection phase (S10, S11, S1).

17. The method as claimed in one of the preceding claims, characterized in that, in step e), the orientation of a vector, which is perpendicular to the projection surface and referred to as the "normal", is ascertained as a first result, and the projection axis is oriented such that it runs parallel to the normal (S8, S9).

18. The method as claimed in one of the preceding claims, characterized in that, in step e), the mean distance from the projector device to the projection surface is ascertained as a second result, and a focusing device of the projection device is manipulated based on the result such that optimum focusing is ensured (S8, S9).

19. The method as claimed in one of the preceding claims, characterized in that the projection device is switched off when the value of the mean distance has reached a maximum value set as a first threshold value, has reached a minimum value set as a second threshold value and/or when the angle between the projection axis and the normal corresponds to a maximum value set as a third threshold value.

20. The method as claimed in one of the preceding claims, characterized in that, are in step e), the brightness is regulated at a minimum value based on the at least one result.

21. A mobile projector device, characterized by means for carrying out the method as claimed in one of the preceding claims.